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EXAMINER
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ART UNIT	PAPER NUMBER
2174	

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Office Action Summary	Application No.	Applicant(s)
		09/934,004	LI ET AL.
		Examiner	Art Unit
		Le Nguyen	2174

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/22/04*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56 and 59-65* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-56 and 59-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to an amendment filed 12/22/04.

2.   Claims 1-56 and 59-65 are pending in this application. Claims 1, 5, 9, 13, 19, 24,
27, 29, 33, 36, 39, 42, 44, 46, 47, 49, 51, 52, 54, 59, 61, 63 and 65 are independent
claims; claims 57, 58, 66 and 67 are cancelled; and, claims 1, 5, 9, 27, 29, 31, 33, 36,
39, 46, 47, 49, 54 and 65 are newly amended. This action is made Final.

3.   The text of those sections of Title 35, U.S. Code not included in this action can
be found in a prior Office action.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite
for failing to particularly point out and distinctly claim the subject matter which applicant
regards as the invention. The phrase "each of said segment is identification as likely
including a play of said baseball" of lines 3-4 of page 12 renders the claim indefinite.
The examiner will interpret the phrase to mean: each of the segment is identified as
likely including a play of baseball.

        The claims are generally narrative and indefinite, failing to conform with current
U.S. practice. They appear to be a literal translation into English from a foreign
document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 102

6.　　　Claims 33, 42 and 43 are rejected under 35 U.S.C. 102(b) as being anticipated

by "Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al.

("Kawashima").

As per claim 33, Kawashima teaches a method of processing a video including

baseball comprising:

identifying a plurality of segments of the baseball video, wherein the start of the

segment is first identified for at least one of the segments (pp. 871-873, sections 1.1,

1.2, 2.1 and 2.2; *the start of the segment is identified by a start time based upon when*

the ball is put into play) then wherein said identifying for the end of at least one of said

segments is based upon detecting a plurality of scene changes, where the first scene

change detected after the start of said at least one of said segments is free from being

selected as said end of said at least one of said segments, where each of the segments

includes a plurality of frames of the video (pp. 871-873, sections 1.1-2.2; *wherein the*

scene change is based upon calculating the value from the count of pixels whose

intensity change in <u>*successive frames*</u> *are larger than a threshold*); and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than said baseball video (Abstract; pg.

872, section 1.2; *i.e. the indexed video segments is a digest of the game or summary of*

the video, a.k.a. compressed play).

As per claim 42, Kawashima teaches a method of processing a video including

baseball comprising:

(a) identifying a plurality of segments of the video, wherein the identifying for at

least one of the segments includes detecting the start of the segment (pp. 871-873,

sections 1.1, 1.2, 2.1 and 2.2) based, at least in part, upon processing of a frame of the

video, where each of the segments includes a plurality of frames of the video wherein

the processing characterizes whether a batter is sufficiently close to at least one of a

catcher and an umpire proximate home base (pg. 871, lines 25-27); and

creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

As per claim 43, Kawashima teaches a method of processing a video including

baseball wherein at least one of the regions is generally brown and at least one of the

regions is generally green are inherent in a baseball video given that the layout of a

baseball field generally consists of the colors brown and green (Abstract; pp. 872,

section 2.1.3).

7.   Claims 47, 48, 59 and 60-64 are rejected under 35 U.S.C. 102(e) as being

anticipated by "Automatically Extracting Highlights for TV Baseball Programs", Rui et al.

("Rui").

As per claim 47, Rui teaches a method of processing a video including baseball

comprising identifying a plurality of segment of the video wherein each of the segments

includes a play of baseball, creating a summarization of the video based upon analysis

of the video by including the plurality of segments wherein the summarization includes fewer frames than the video (Abstract) and removing at least one of the segments from the summary based, at least in part, upon audio information related to the at least one of the segments (pg. 105, right column, lines 24-33).

As per claim 48, Rui teaches a method of processing a video including baseball wherein the audio information is obtained exclusively from a temporal analysis (Abstract; pg. 105, right column, lines 24-33; 3rd paragraph, pg. 107 through 3.1.5 Summary, pg. 108; *using audio-track features, highlights of exciting portions of a baseball video is obtained, so that users can skip the boring parts thereby reducing the viewing time*).

As per claim 59, Rui teaches a method of processing a video comprising a service provider identifying: a summary of a video and a description of the summary wherein the summary and the description is provided to a remote user in response to receiving a request from the remote user (pg. 105, "Introduction"; *a video summary is transmitted in response to user's request via indices/descriptions*).

As per claim 60, Rui teaches a method of processing a video wherein the user request the summary with a browser (pg. 105, left column, line 26 through right column, line 2).

Claims 61 and 63 are individually similar in scope to claim 59 and are therefore rejected under similar rationale.

Claims 62 and 64 are individually similar in scope to claim 60 and are therefore rejected under similar rationale.

Claim Rejections - 35 USC § 103

8.   Claims 1-5, 7-12, 29 and 31-32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over "Indexing of Baseball Telecast for Content-based Video Retrieval",

Kawashima et al. ("Kawashima") in view of Okayama et al. ("Okayama").

As per claim 1, Kawashima teaches a method of processing a video including

baseball comprising:

(a) identifying a plurality of segments of the video based upon an event, wherein

the event is characterized by a start time based upon when the ball is put into play and

an end time based upon when the ball is considered out of play, where each of the

segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1

and 2.2; *e.g. the at bat event comprising of a start point in time slightly before the*

pitching and end point in time slightly after the catcher catches the ball if the ball is

struck out and after the ball is thrown to a baseman if the ball is hit); and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

However, Kawashima does not explicitly disclose the event being characterized

in a manner free from using a model sequence of frames to determine the approximate

frame that the ball is put into play. Okayama teaches a method of processing a video

wherein an event is characterized in a manner free from using a model sequence of

frames to determine the approximate frame that the ball is put into play (fig. 4; section

[0096]). Therefore, it would have been obvious to an artisan at the time of the invention

to include Okayama's teaching of an event being characterized in a manner free from

using a model sequence of frames to determine the approximate frame that a ball is put

into play in a method of processing a video to Kawashima's teaching of an event being

characterized by a start time based upon when a ball is put into play and an end time

based upon when it is considered out of play in a method of processing a video in order

to provide users with an information extracting device for extracting information that is

not restrictive to baseball only and that encompasses a wider range of video content.

As per claim 2, the modified Kawashima teaches a method of processing a video

including baseball wherein the event is defined by the rules of baseball (Kawashima: pp.

871-873, sections 1.1-2.1.4; *events such as scenes in which a batter was struck out or*

got a hit or a home run is defined by the rules of baseball using a spotting technique

comprising a search of the minimal warp function by comparing input video sequence

with pitching/batting model sequences).

As per claim 3, the modified Kawashima teaches a method of processing a video

including baseball wherein the start time is temporally proximate a baseball pitch

(Kawashima: pg. 872, lines 10-11).

As per claim 4, the modified Kawashima teaches a method of processing a video

including baseball wherein the end time is temporally proximate to the batter missing

the ball with a bat (Kawashima: pg. 872, lines 12-15).

As per claim 5, Kawashima teaches a method of processing a video including

baseball comprising identifying a plurality of segment of the video, where each of the

segments includes a plurality of frames of the video, based upon a series of activities

defined by the rules of baseball (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *series of*

activities such as scenes in which a batter was struck out or got a hit or a home run is

defined by the rules of baseball using a spotting technique comprising a search of the

minimal warp function by comparing input video sequence with pitching/batting model

sequences) that could potentially result in at least one of a score, preventing a score,

advancing a team toward a score, preventing advancing a team toward a score or

creating a summarization of the video by including the plurality of segments where the

summarization includes fewer frames than the video (Abstract; pg. 872, section 1.2; *i.e.*

the indexed video segments is a digest of the game or summary of the video, a.k.a.

compressed play).

However, Kawashima does not explicitly disclose the segments being free from

including a batter swinging a bat. Okayama teaches a method of processing a video

wherein segments being free from including a batter swinging a bat (fig. 4; section

[0096]). Therefore, it would have been obvious to an artisan at the time of the invention

to include Okayama's teaching of segments being free from including a batter swinging

a bat in a method of processing a video to Kawashima's teaching of identifying a

plurality of segments of a video based upon a series of activities defined by the rules of

baseball in a method of processing a video in order to provide users with an information

extracting device for extracting information that is not restrictive to baseball only and

that encompasses a wider range of video content.

As per claim 7, the modified Kawashima teaches a method of processing a video including baseball wherein the activities are determined based upon the color characteristics of the video (Kawashima: pp. 872-873, section 2.1.3; *activities are spotted by calculating the value from the count of pixels whose intensity change in successive frames are larger than a threshold wherein pixels are painted/colored to form an image produced on the screen*).

As per claim 8, the modified Kawashima teaches a method of processing a video including baseball wherein the activities are determined based upon scene changes (Kawashima: pp. 872-873; section 1.1-2.1.4; *wherein an activity such as an at bat activity is a period from a basic scene to the next basic scene*).

As per claim 9, Kawashima teaches a method of processing a video including baseball comprising:

(a) identifying a plurality of segments of the video based upon detecting a play of the baseball game, wherein the identifying includes detecting the start of the play and detecting the end of the play, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start of the play in which a batter was struck out or got a hit or a home run is defined by the rules of baseball using a spotting technique comprising a search of the minimal warp function by comparing input video sequence with pitching/batting model sequences*); and

(b) creating a summarization of the video by including the plurality of segments, where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the video, a.k.a. compressed play*).

However, Kawashima does not explicitly disclose the event being characterized in a manner free from using a model sequence of frames to determine the approximate frame that the ball is put into play. Okayama teaches a method of processing a video wherein an event is characterized in a manner free from using a model sequence of frames to determine the approximate frame that the ball is put into play (fig. 4; section [0096]). Therefore, it would have been obvious to an artisan at the time of the invention to include Okayama's teaching of an event being characterized in a manner free from using a model sequence of frames to determine the approximate frame that a ball is put into play in a method of processing a video to Kawashima's teaching of an event being characterized by a start time based upon when a ball is put into play and an end time based upon when it is considered out of play in a method of processing a video in order to provide users with an information extracting device for extracting information that is not restrictive to baseball only and that encompasses a wider range of video content.

As per claim 10, the modified Kawashima teaches a method of processing a video including baseball wherein the detecting the end of the play is based upon detecting the start of the play (Kawashima: pp. 872-873; section 1.1-2.1.4; *wherein a play such as an at bat activity is a period from n end of a basic scene to the start of the next basic scene*).

As per claim 11, the modified Kawashima teaches a method of processing a video including baseball wherein the summarization identifies the plurality of segments of the video (Kawashima: pg. 872, section 1.2).

As per claim 12, the modified Kawashima teaches a method of processing a video including baseball wherein the summarization is a summarized video comprising the plurality of segments excluding at least a portion of the video other than the plurality of segments (Kawashima: pg. 872, section 1.2).

As per claim 29, Kawashima teaches a method of processing a video including baseball comprising:

identifying a plurality of segments of the baseball video, wherein the identifying for the end of at least one of the segments is based upon detecting a scene change, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *wherein an activity such as an at bat activity is a period from a basic scene to the next basic scene*); and

(b) creating a summarization of the video by including the plurality of segments, where the summarization includes fewer frames than said baseball video (Abstract; pg. 872, section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the video, a.k.a. compressed play*).

Although Kawashima teaches identifying a plurality of segments of the baseball video comprising identifying the start of at least one of the segments using a model sequence of frames to determine the approximate frame that the ball is put into play (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2), Kawashima does not explicitly disclose

identifying for the start of at least one of the segments being free from using a model

sequence of frames to determine the approximate frame that the ball is put into play.

Okayama teaches a method of processing a video comprising identifying for the start of

at least one of the segments being free from using a model sequence of frames to

determine the approximate frame that the ball is put into play (fig. 4; section [0096]).

Therefore, it would have been obvious to an artisan at the time of the invention to

include Okayama's teaching of identifying for the start of at least one of the segments

being free from using a model sequence of frames to determine the approximate frame

that the ball is put into play in a method of processing a video to Kawashima's teaching

of identifying the start of at least one of the segments using a model sequence of

frames to determine the approximate frame that the ball is put into play in a method of

processing a video in order to provide users with an additional implementation

preference in video segmenting for extracting content.

As per claim 31, the modified Kawashima teaches a method of processing a

video including baseball wherein the identifying for the start of at least one of the

segments is based upon detecting regions of color (Kawashima: pp. 872, section 2.1.3;

i.e. the identifying for the start of at least one of the segments is based upon detecting

regions of changing pixels/color).

As per claim 32, the modified Kawashima teaches a method of processing a

video including baseball wherein at least one of the regions is generally brown and at

least one of the regions is generally green are inherent in a baseball video given that

the layout of a baseball field generally consists of the colors brown and green

(Kawashima: Abstract; pp. 872, section 2.1.3).

9.   Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over "Indexing

of Baseball Telecast for Content-based Video Retrieval", Kawashima et al.

("Kawashima") in view of Okayama et al. ("Okayama") as applied to claim 5, and further

in view of "Automatically Extracting Highlights for TV Baseball Programs", Rui et al.

("Rui").

As per claim 6, although the modified Kawashima teaches a method of

processing a video including baseball wherein the summarization of the plurality of

segments comprises a plurality of segments within the video (Kawashima: pg. 872,

section 1.2; *the indexed video segments of the summarization of the plurality of*

segments is stored as a digest of the game), the modified Kawashima does not

explicitly disclose the summarization of the plurality of segments to be in the same

temporal order as the plurality of segments within the video. Rui teaches a method of

processing a video including baseball wherein the summarization of the plurality of

segments is in the same temporal order as the plurality of segments within the video

(Abstract; section 5.4; Introduction; *a method of allowing users to watch just the*

highlights of the exciting portions instead of the whole game due to time constraints, i.e.

highlights are extracted automatically so that viewing time can be reduced). Therefore, it

would have been obvious to an artisan at the time of the invention to include Rui's

method of processing a video including baseball wherein the summarization of the

plurality of segments is in the same temporal order as the plurality of segments within

the video to the modified Kawashima's method of processing a video including baseball wherein the summarization of the plurality of segments comprises a plurality of segments within the video so that the time in which sequential plays in a game is being viewed is reduced.

10.   Claims 13-26, 35, 39, 44, 45 and 51-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over "Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al. ("Kawashima") in view of "Multimedia Content Analysis", Wang et al. ("Wang").

As per claim 13, Kawashima teaches a method of processing a video including baseball comprising:

(a) identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon detecting the start of the play and detecting the end of the play, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start of the play in which a batter was struck out or got a hit or a home run is defined by the rules of baseball using a spotting technique comprising a search of the minimal warp function by comparing input video sequence with pitching/batting model sequences*) and wherein the activities are determined based upon the color characteristics of the video (pp. 872-873, section 2.1.3; *activities are spotted by calculating the value from the count of pixels whose intensity change in successive frames are larger than a threshold wherein pixels are painted/colored to form an image produced on the screen*); and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

Kawashima does not explicitly disclose one of the region to be of a generally green

color and at least one region of a generally brown color. Wang teaches a method of

processing a video comprising identifying a plurality of segments of the video, wherein

the start of the plurality of segments is identified based upon detecting at least one

region of a color such as green and at least one region of another color such as brown

(pp. 32-33, "Visual Descriptors"; *each segment at any level of the hierarchy, a set of*

audio and visual event-type Ds and annotation DSs, are used to characterize the

segment or region comprising descriptors such as dominant color, in which green and

brown is inherently inclusive as dominant colors of baseball, or color histogram

wherein several types of histograms can be specified including common color

histogram, which includes the percentage of each quantized color among all pixels in a

segment or region, or instead of specifying the entire color histogram, one can specify

the first few coefficients of the Haar transform of the color histogram). Therefore, it

would have been obvious to an artisan at the time of the invention to include Wang's

identifying a plurality of video segments based upon detecting at least one region of a

color such as green and at least one region of another color such as brown to

Kawashima's identifying a plurality of video segments based upon color characteristics

of the video as an additional visual descriptor in characterizing the video segment as

part of a goal of video segmentation in automatically grouping shots into what are perceived as "scenes".

As per claims 14-16, the modified Kawashima teaches a method of processing a video including baseball comprising detecting at least two regions of the generally green color and/or two regions of generally brown color (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, left column, lines 20-26).

As per claims 17 and 18, the modified Kawashima teaches a method of processing a video including baseball comprising color histograms used in identifying a plurality of segments of the video wherein the green color and the brown color being generally vertically aligned or having sufficient horizontal spatial extent are inherent in a baseball video given that the layout of a baseball field comprises of vertical alignment of green and brown colors (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, lines 6-17; pg. 33, lines 27-46).

As per claim 19, Kawashima teaches a method of processing a video including baseball comprising:

(a) identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon detecting the start of the play and detecting the end of the play, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start of the play in which a batter was struck out or got a hit or a home run is defined by the rules of baseball using a spotting technique comprising a search of the minimal warp function by comparing input video sequence with pitching/batting model sequences*) and wherein

the activities are determined based upon the color characteristics of the video (pp. 872-

873, section 2.1.3; *activities are spotted by calculating the value from the count of pixels*

whose intensity change in successive frames are larger than a threshold wherein pixels

are painted/colored to form an image produced on the screen); and

       (b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

Kawashima does not explicitly disclose at least three regions of horizontally oriented

regions of colors. Wang teaches a method of processing a video comprising identifying

a plurality of segments of the video, wherein videos are segmented based upon regions

of horizontally oriented regions of colors (pp. 32-33, "Visual Descriptors"; *i.e. color*

histograms are used in identifying a plurality of segments of the video wherein regions

of 3 horizontally oriented regions of colors are inherent in a baseball video given the

layout of a baseball field) Therefore, it would have been obvious to an artisan at the

time of the invention to include Wang's method of processing a video comprising

identifying a plurality of segments of the video, wherein videos are segmented based

upon regions of horizontally oriented regions of colors to Kawashima's method of

processing a video comprising identifying a plurality of segments of the video, wherein

videos are segmented based upon the change in color characteristics of the video as an

additional visual descriptor in characterizing the video segment as part of a goal of

video segmentation in automatically grouping shots into what are perceived as "scenes".

As per claims 20-22, the modified Kawashima teaches a method of processing a video including baseball wherein at least two of the regions have the same dominant color, at least three regions have different said colors and at least two regions are located on opposing sides of another said detected region of a different color (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, left column, lines 20-26; *described are features that are all inherent to the layout of a baseball field*).

As per claim 23, the modified Kawashima teaches a method of processing a video including baseball wherein said one of said regions is generally brown and another of the regions is generally green are inherent in a baseball video given that the layout of a baseball field generally consists of the colors brown and green (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, left column, lines 20-26).

As per claim 24, Kawashima teaches a method of processing a video including baseball comprising:

(a) identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon identifying the start of the play and identifying the end of the play, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start of the play in which a batter was struck out or got a hit or a home run is defined by the*

rules of baseball using a spotting technique comprising a search of the minimal warp

function by comparing input video sequence with pitching/batting model sequences);

and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

Kawashima does not explicitly disclose the start of the plurality of segments is identified

based upon identifying at least three regions of sufficient spatial coherence and

sufficient horizontal extent. Wang teaches a method of processing a video comprising

identifying a plurality of segments of the video, wherein videos are segmented based

upon shape/spatial geometry such as regions of sufficient spatial coherence and

horizontal extent (pg. 33, lines 27-46) Therefore, it would have been obvious to an

artisan at the time of the invention to include Wang's method of processing a video

comprising identifying a plurality of segments of the video, wherein videos are

segmented based upon shape/spatial geometry such as regions of sufficient spatial

coherence and horizontal extent to Kawashima's method of processing a video

including baseball comprising identifying a plurality of segments of the video, wherein

the start of the plurality of segments is identified based upon identifying the start of the

play and identifying the end of the play in order to provide users with an additional visual

descriptor in characterizing the video segment as part of a goal of video segmentation in

automatically grouping shots into what are perceived as "scenes".

As per claim 25, the modified Kawashima teaches a method of processing a video including baseball wherein each said at least three regions is at least one of substantially generally green and substantially generally brown are inherent in a baseball video given that the layout of a baseball field generally consists of at least three regions of substantially generally green and substantially generally brown (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, left column, lines 20-26).

As per claim 26, the modified Kawashima teaches a method of processing a video including baseball wherein the three regions being generally vertically spaced apart are inherent in a baseball video given that the layout of a baseball field comprises of three regions of generally vertical spacing (Kawashima: Abstract; *alluding to baseball video segmentation*; Wang: pg. 33, lines 27-46).

As per claim 35, although Kawashima teaches a method of processing a video including baseball comprising identifying a plurality of segments of the baseball video, wherein said identifying for the end of at least one of said segments is based upon detecting a plurality of scene changes, where each of the segments includes a plurality of frames of the video (pp. 871-873, sections 1.1-2.2; *wherein the scene change is based upon calculating the value from the count of pixels whose intensity change in successive frames are larger than a threshold*), Kawashima does not explicitly disclose one of the region to be of a generally green color and at least one region of a generally brown color. Wang teaches a method of processing a video comprising identifying a plurality of segments of the video, wherein the start of the plurality of segments is

identified based upon detecting at least one region of a color such as green and at least one region of another color such as brown (pp. 32-33, "Visual Descriptors"; *each segment at any level of the hierarchy, a set of audio and visual event-type Ds and annotation DSs, are used to characterize the segment or region comprising descriptors such as dominant color, in which green and brown is inherently inclusive as dominant colors of baseball, or color histogram wherein several types of histograms can be specified including common color histogram, which includes the percentage of each quantized color among* all *pixels in a segment or region, or instead of specifying the entire color histogram, one can specify the first few coefficients of the Haar transform of the color histogram*). Therefore, it would have been obvious to an artisan at the time of the invention to include Wang's identifying a plurality of video segments based upon detecting at least one region of a color such as green and at least one region of another color such as brown to Kawashima's identifying a plurality of video segments based upon color characteristics of the video as an additional visual descriptor in characterizing the video segment as part of a goal of video segmentation in automatically grouping shots into what are perceived as "scenes".

As per claims 39 and 44, Kawashima teaches a method of processing a video including baseball comprising identifying a plurality of segments of the video wherein each of the segments is identified as likely including a play of baseball (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. a play of baseball/the at bat event is characterized by a start point in time slightly before the pitching and end point in time slightly after the catcher catches the ball if the ball is struck out and after the ball is thrown to a baseman*

if the ball is hit) and wherein each of the segments includes detecting a play of the

baseball game (Abstract) and creating a summarization of the video by including the

plurality of segments, where the summarization includes fewer frames than the video

(Abstract; pg. 872, section 1.2; *i.e. the indexed video segments is a digest of the game*

or summary of the video, a.k.a. compressed play). Kawashima does not explicitly

disclose detecting a commercial or a segment that has a temporally sufficiently short

duration within the video and creating a summarization of the video wherein the plurality

of segments of the video sufficiently temporally close to the commercial are free from

being included within the summarization, where the segment that has a temporally

sufficiently short duration, or separating/removing the identified segment from a

summarization. Wang teaches a method of processing a video comprising identifying a

plurality of segments of the video, wherein videos are segmented based upon detecting

a commercial within the video and creating a summarization of the video wherein the

plurality of segments of the video sufficiently temporally close to the commercial are free

from being included within the summarization, where the segment that has a temporally

sufficiently short duration, or separating/removing the identified segment from a

summarization (pg. 21, right column; pg. 29, right column; *separation of interested video*

portions and commercials). Therefore, it would have been obvious to an artisan at the

time of the invention to include Wang's method of detecting a commercial within the

video and creating a summarization of the video wherein the plurality of segments of the

video sufficiently temporally close to the commercial are free from being included within

the summarization, where the segment that has a temporally sufficiently short duration,

or separating/removing the identified segment from a summarization to Kawashima's

method of detecting a play of the baseball game in order to provide users with additional

criteria in content-based video retrieval.

As per claim 45, although the modified Kawashima teaches a method of

processing a video including baseball wherein the commercial is detected based upon a

change in color and calculation of the most dominant color (Wang: pg. 21, left column,

lines 1-11; pg. 26, line 33 through right column, line 10; *commercials are detected*

based upon changes in color, wherein color includes black), the modified Kawashima

does not explicitly disclose the commercial being detected based upon at least one

substantially black frame. Official Notice is taken that detection of a commercial frame

adjacent to a black frame is well known in the art. Therefore, it would have been

obvious to an artisan at the time of the invention to include detection of a commercial

frame adjacent to a black frame to the modified Kawashima's method of detection of a

commercial based upon a change in color and calculation of the most dominant color in

order to allow for errors in video editing where a black frame is left uncut.

As per claim 51, Kawashima teaches a method of processing a video including

baseball comprising:

(a) identifying a plurality of segments of the video, wherein the start of the

plurality of segments is identified based upon identifying the start of the play and

identifying the end of the play, where each of the segments includes a plurality of

frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start*

of the play in which a batter was struck out or got a hit or a home run is defined by the

rules of baseball using a spotting technique comprising a search of the minimal warp

function by comparing input video sequence with pitching/batting model sequences);

and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

Kawashima does not explicitly disclose the start of the plurality of segments is identified

based upon detecting different textures. Wang teaches a method of processing a video

comprising identifying a plurality of segments of the video, wherein videos are

segmented based upon detecting different textures (pg. 33, "Texture" section)

Therefore, it would have been obvious to an artisan at the time of the invention to

include Wang's method of processing a video comprising identifying a plurality of

segments of the video, wherein videos are segmented based upon detecting different

textures to Kawashima's method of processing a video including baseball comprising

identifying a plurality of segments of the video, wherein the start of the plurality of

segments is identified based upon identifying the start of the play and identifying the

end of the play in order to provide users with an additional visual descriptor in

characterizing the video segment as part of a goal of video segmentation in

automatically grouping shots into what are perceived as "scenes".

As per claim 52, Kawashima teaches a method of processing a video including

baseball comprising:

(a) identifying a plurality of segments of the video, wherein the start of the

plurality of segments is identified based upon identifying the start of the play and

identifying the end of the play, where each of the segments includes a plurality of

frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. detecting the start*

of the play in which a batter was struck out or got a hit or a home run is defined by the

rules of baseball using a spotting technique comprising a search of the minimal warp

function by comparing input video sequence with pitching/batting model sequences);

and

(b) creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the*

video, a.k.a. compressed play).

Kawashima does not explicitly disclose the start of the plurality of segments is identified

based upon the video being free from substantial translational motion. Wang teaches a

method of processing a video comprising identifying a plurality of segments of the video,

wherein videos are segmented based upon the video being free from substantial

translational motion (pg. 22, left column, 2nd paragraph). Therefore, it would have been

obvious to an artisan at the time of the invention to include Wang's method of

processing a video comprising identifying a plurality of segments of the video, wherein

videos are segmented based upon the video being free from substantial translational

motion to Kawashima's method of processing a video including baseball comprising

identifying a plurality of segments of the video, wherein the start of the plurality of

segments is identified based upon identifying the start of the play and identifying the

end of the play in order to provide users with an additional visual descriptor in

characterizing the video segment as part of a goal of video segmentation in

automatically grouping shots into what are perceived as "scenes".

As per claim 53, Kawashima teaches a method of processing a video including

baseball comprising:

(a) identifying a plurality of segments of the baseball video, wherein said

identifying for the end of at least one of said segments is based upon detecting a scene

change, where each of said segments includes a plurality of frames of the video (pp.

871-873, sections 1.1, 1.2, 2.1 and 2.2; *wherein an activity such as an at bat activity is a*

period from a basic scene to the next basic scene); and

(b) creating a summarization of the video by including said plurality of segments,

where the summarization includes fewer frames than said baseball video (Abstract; pg.

872, section 1.2; *i.e. the indexed video segments is a digest of the game or summary of*

the video, a.k.a. compressed play).

Kawashima does not explicitly disclose not using the scene change to identify the end

of the at least on of said segments if the temporally relevant portion of the at least one

said segment includes substantially horizontal motion. Wang teaches not using the

scene change to identify the end of the at least on of said segments if the temporally

relevant portion of the at least one said segment includes substantially horizontal motion

(pg. 21, right column, lines 1-2; pg. 22, left column, lines 3-35; pg. 23, right column,

lines 18-22, lines 34-37 and lines 53-55; pg. 28, right column, lines 33-34; pg. 33, lines

13-48). Therefore, it would have been obvious to an artisan at the time of the invention

to include Wang's method of not using the scene change to identify the end of the at

least on of said segments if the temporally relevant portion of the at least one said

segment includes substantially horizontal motion to Kawashima's method identifying a

plurality of segments of the baseball video, wherein said identifying for the end of at

least one of said segments is based upon detecting a scene change so that a desired

scene change is not missed.

11.   Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable

over "Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et

al. ("Kawashima") in view of "Multimedia Content Analysis", Wang et al. ("Wang"), and

further in view of Okayama et al. ("Okayama").

As per claim 27, Kawashima teaches a method of processing a video including

baseball comprising:

identifying a plurality of segments of the video based upon an event, wherein the

identifying for at least one of the segments includes detecting the start of the segment

based upon processing of a first single frame of the video, where each of the segments

includes a plurality of frames of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2);

and

creating a summarization of the video by including the plurality of segments,

where the summarization includes fewer frames than the video (Abstract; pg. 872,

section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the video, a.k.a. compressed play*).

Kawashima does not explicitly disclose verifying that said first single frame is an appropriate start of the segment based upon processing of another single frame temporally relevant to the first single frame. Wang teaches verifying that said first single frame is an appropriate start of the segment based upon processing of another single frame temporally relevant to the first single frame (pg. 22, left column, lines 1-8). Therefore, it would have been obvious to an artisan at the time of the invention to include Wang's verifying that said first single frame is an appropriate start of the segment based upon processing of another single frame temporally relevant to the first single frame to Kawashima's start of the segment based upon processing of another single frame temporally relevant to the first single frame in order to reduce errors in segmenting related scenes.

However, Kawashima and Wang still do not explicitly disclose detecting a segment based upon processing of a first single frame of the video *independently of other frames*. Okayama teaches a method of processing a video comprising detecting a segment based upon processing of a first single frame of the video independently of other frames (fig. 4; section [0096]). Therefore, it would have been obvious to an artisan at the time of the invention to include Okayama's teaching of detecting a segment based upon processing of a first single frame of the video independently of other frames in a method of processing a video to Kawashima's teaching of detecting a segment based upon processing of a first single frame of the video in a method of processing a

video in order to provide users with an additional implementation preference in video

segmenting for extracting content.

As per claim 28, the modified Kawashima teaches a method of processing a

video including baseball wherein in said identifying based upon detecting at least one

region of generally brown and at least one region of generally green are inherent in a

baseball video given that the layout of a baseball field generally consists of the colors

brown and green (Kawashima: Abstract; *alluding to baseball video segmentation*;

Wang: pg. 33, left column, lines 20-26).

12.   Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over

"Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al.

("Kawashima") in view of "Multimedia Content Analysis", Wang et al. ("Wang").

As per claim 30, Kawashima teaches a method of processing a video including

baseball comprising identifying a plurality of segments of the baseball video, wherein

the scene change is based upon calculating the value from the count of pixels whose

intensity change in successive frames are larger than a threshold (pp. 872-873, section

2.1.3). Kawashima does not teach identifying the scene change based upon a

histogram. Wang teaches a method of processing a video wherein identifying the scene

change in video segmenting is based upon a histogram (Wang: pg. 33, left column,

lines 6-17; pg. 33, right column lines 3-12). Therefore, it would have been obvious to an

artisan at the time of the invention to include Wang's method of processing a video

wherein scene change in video segmenting is based upon a histogram to Kawashima's

method of processing a video wherein scene change is based upon calculating the

value from the count of pixels whose intensity change in successive frames are larger

than a threshold in order to provide users with an implementation preference.

13.   Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over

"Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al.

("Kawashima") in view of Okayama et al. ("Okayama") as applied to claim 29, and

further in view of "Video summarization using Hidden Markov Model", Huang et al.

("Huang").

As per claim 34, although the modified Kawashima teaches a method of

processing a video including baseball comprising identifying a plurality of segments of

the baseball video, wherein said identifying for the end of at least one of said segments

is based upon detecting a plurality of scene changes, where each of the segments

includes a plurality of frames of the video (Kawashima: pp. 871-873, sections 1.1-2.2;

wherein the scene change is based upon calculating the value from the count of pixels

whose intensity change in <u>*successive frames*</u> *are larger than a threshold*), the modified

Kawashima does not explicitly disclose the frame is identified as primarily the field at the

first scene change. Huang teaches a method of processing a video including baseball

comprising identifying a plurality of segments of the baseball video, wherein the frame is

identified as primarily the field at the first scene change (pg. 473, "Introduction"; *e.g.*

distance view of batter shot, defense of the outfield). Therefore, it would have been

obvious to an artisan at the time of the invention to include Huang's method of

processing a video including baseball comprising identifying a plurality of segments of

the baseball video, wherein the frame is identified as primarily the field at the first scene

change to the modified Kawashima's method of processing a video including baseball

comprising identifying a plurality of segments of the baseball video, wherein said

identifying for the end of at least one of said segments is based upon detecting a

plurality of scene changes, where each of the segments includes a plurality of frames of

the video in order to provide users with additional criteria in content-based video

retrieval.

14.   Claims 36-38 and 40-41 are rejected under 35 U.S.C. 103(a) as being

unpatentable over "Indexing of Baseball Telecast for Content-based Video Retrieval",

Kawashima et al. ("Kawashima") in view of "Multimedia Content Analysis", Wang et al.

("Wang") and further in view of "Automatically Extracting Highlights for TV Baseball

Programs", Rui et al. ("Rui").

As per claim 36, Kawashima teaches a method of processing a video including

baseball comprising identifying a plurality of segments of the video wherein each of the

segments is identified as a play (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *the*

segment is identified by a start time based upon when the ball is put into play and an

end time based upon when the ball is considered out of play, e.g. the at bat event

comprising of a start point in time slightly before the pitching and end point in time

slightly after the catcher catches the ball if the ball is struck out and after the ball is

thrown to a baseman if the ball is hit) and wherein each of the segments includes a

plurality of frames of the video (Abstract) and creating a summarization of the video by

including the plurality of segments, where the summarization includes fewer frames

than the video (Abstract; pg. 872, section 1.2; *i.e. the indexed video segments is a*

digest of the game or summary of the video, a.k.a. compressed play). Kawashima does

not explicitly disclose identifying a plurality of segments that are temporally separated

by a sufficiently short duration and then connecting the identified plurality of segments.

Wang teaches a method of processing a video comprising identifying a plurality of

segments that are temporally separated by a sufficiently short duration and then

connecting the identified plurality of segments (pg. 21, right column; pg. 29, right

column; *separation of interested video portions and commercials).* Therefore, it would

have been obvious to an artisan at the time of the invention to include Wang's method

of identifying a plurality of segments that are temporally separated by a sufficiently short

duration to Kawashima's method of detecting a play of the baseball game in order to

provide users with additional criteria in content-based video retrieval.

However, Kawashima and Wang still do not explicitly disclose connecting the

identified plurality of segments. Rui teaches a method of processing a video including

baseball comprising of connecting the identified plurality of segments so that the

summary is in the same temporal order as the plurality of segments within the video

(Abstract; section 5.4; Introduction; *a method of allowing users to watch just the*

highlights of the exciting portions instead of the whole game due to time constraints, i.e.

highlights are extracted automatically so that viewing time can be reduced). Therefore, it

would have been obvious to an artisan at the time of the invention to include Rui's

method of processing a video including baseball comprising of connecting the identified

plurality of segments to the Kawashima and Wang's method of processing a video

including baseball comprising of a plurality of segments within the video so that the time

in which sequential plays in a game is being viewed is reduced.

As per claims 37-38 and 40-41, the modified Kawashima teaches a method of

processing a video including baseball wherein the connecting includes discarding the

frames of the video between the identified plurality of segments and wherein the

connecting results in a single segment that includes the identified plurality of segments

together with the frames of the video between the identified plurality of segments

(Wang: pg. 21, right column; pg. 29, right column; *separation of interested video*

portions and commercials; Rui: Abstract; section 5.4; Introduction; *a method of allowing*

users to watch just the highlights of the exciting portions instead of the whole game due

to time constraints, i.e. highlights are extracted automatically so that viewing time can

be reduced).

15.   Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over

"Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al.

("Kawashima") in view of "Detection of Slow-Motion Replay Segments in Sports Video

for Highlights Generation", Pan et al. ("Pan"), and further in view of Okayama et al.

("Okayama").

As per claim 46, Kawashima teaches a method of processing a video including

baseball comprising identifying a plurality of segments of the video wherein each of the

segments includes a play of baseball wherein the segments include full-speed plays

and creating a summarization of the video by including the plurality of segments, where

the summarization includes fewer frames than the video, where a user may select from

the summarization including only full-speed plays (Abstract; pg. 872, section 1.2; *i.e. the indexed video segments is a digest of the game or summary of the video, a.k.a. compressed play where users may select a full-speed play segment among the plurality of segments*). Kawashima does not disclose segments that include slow motion plays of the full-speed plays and creating a summarization where a user may select from the summarization comprising only of slow motions plays. Pan teaches a method of processing a video including baseball comprising identifying a plurality of segments of the video wherein each of the segments includes a play of baseball ("Introduction", left column) wherein the segments include slow motion plays of the full-speed plays ("Introduction", right column; in processing the video, slow motion plays of the full-speed plays and full-speed plays are identified) and users may select from the summarization comprising only of slow motions plays. Therefore, it would have been obvious to an artisan at the time of the invention to include Pan's segments that include slow motion plays of the full-speed plays and creating a summarization where a user may select from the summarization comprising only of slow motions plays to Kawashima's segments that include full-speed plays and creating a summarization where a user may select from the summarization comprising only of full-speed plays in order to provide user with the ability to capture inherently important events.

However, Kawashima and Pan still do not explicitly disclose identifying a segment in a manner free from using a model sequence of frames to determine the approximate frame that the play starts. Okayama teaches a method of processing a video comprising identifying a segment in a manner free from using a model sequence

of frames to determine the approximate frame that the play starts (fig. 4; section [0096]).

Therefore, it would have been obvious to an artisan at the time of the invention to

include Okayama's teaching of identifying a segment in a manner free from using a

model sequence of frames to determine the approximate frame that the play starts in a

method of processing a video to Kawashima and Pan's teaching of detecting a segment

based upon processing of a first single frame of the video in a method of processing a

video in order to provide users with an additional implementation preference in video

segmenting for extracting content.

16.   Claims 49 and 50 are rejected under 35 U.S.C. 102(e) as being anticipated by

"Automatically Extracting Highlights for TV Baseball Programs", Rui et al. ("Rui") in view

of "Multimedia Content Analysis", Wang et al. ("Wang").

As per claim 49, although Rui teaches a method of processing a video including

baseball comprising identifying a plurality of segments of the video, where the

identifying is based upon analysis of frames of the video, wherein each of the segments

includes a play of baseball, creating a summarization of the video by including the

plurality of segments wherein the summarization includes fewer frames than the video

and the duration of at least one of the segments from the summary is based, at least in

part, upon audio information related to the at least on of the segments (Abstract; pg.

105, right column, lines 24-33), Rui does not explicitly disclose modifying the duration of

at least one of the segments from the summary based, at least in part, upon audio

information related to the at least on of the segments. Wang teaches a method of

processing a video comprising identifying a plurality of segments of the video, creating a

summarization of the video by including the plurality of segments wherein the

summarization includes fewer frames than the video and modifying the duration of at

least one of the segments from the summary based, at least in part, upon audio

information related to the at least on of the segments (pg. 29, left column, lines 49-53;

pg. 30, left column, lines 6-22). Therefore, it would have been obvious to an artisan at

the time of the invention to include Wang's modifying the duration of at least one of the

segments from the summary based, at least in part, upon audio information related to

the at least on of the segments to the method of Rui wherein the duration of at least one

of the segments from the summary based, at least in part, upon audio information

related to the at least on of the segments in order to provide users with a more

customized method of processing a video.

As per claim 50, the modified Rui teaches a method of processing a video

including baseball wherein the audio information is obtained exclusively from a temporal

analysis (Rui: Abstract; pg. 105, right column, lines 24-33; 3rd paragraph, pg. 107

through 3.1.5 Summary, pg. 108; *using audio-track features, highlights of exciting*

portions of a baseball video is obtained, so that users can skip the boring parts thereby

reducing the viewing time).

17.   Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over

"Automatically Extracting Highlights for TV Baseball Programs", Rui et al. ("Rui") in view

of Kim et al. ("Kim").

As per claim 54, although Rui teaches a method of processing a video

comprising providing a description of the video, identifying a plurality of segments of the

video based upon the description (pg. 105, "Introduction"; *provided are*

indices/descriptions of the video) and generating another video based upon the

identified segments, wherein the another video has less frames than the video (pg. 105,

"Introduction"; *a second video comprises of highlights of a first video wherein the*

second video consists of less frames than the first and is based upon the exciting

portions/identified segments), Rui does not explicitly disclose defining a segment of a

video using TV-Anytime compliant description scheme. Kim teaches a method of

processing a video comprising defining a segment of a video using TV-Anytime

compliant description scheme. Therefore, it would have been obvious to an artisan at

the time of the invention to include Kim's teaching of defining a segment of a video

using TV-Anytime compliant description scheme in a method of processing a video to

Rui's teaching of identifying segments of a video based upon a description in a method

of processing a video as an implementation preference.

18.   Claims 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable

over "Automatically Extracting Highlights for TV Baseball Programs", Rui et al. ("Rui") in

view of Kim et al. ("Kim").

As per claims 55 and 56, although the modified Rui teaches a method of

processing a video wherein the video is in accordance with the channel capacity of a

transmission medium and of a storage device (Rui: pg. 105, left column, lines 26-35),

the modified Rui does not explicitly disclose the video is transcoded in accordance with

the channel capacity of a transmission medium and transcoded in accordance with the

channel capacity of a storage device. Official Notice is taken that transcoding video in

accordance with the channel capacity of a transmission medium and transcoding in accordance with the channel capacity of a storage device is well known in the art. Therefore, it would have been obvious to an artisan at the time of the invention to include a method of processing a video wherein the video is transcoded in accordance with the channel capacity of a transmission medium and of a storage device to Rui's method of processing a video wherein the video is in accordance with the channel capacity of a transmission medium and of a storage device so that users may view the segments of video with the associated description in various formats.

19.   Claim 65 is rejected under 35 U.S.C. 103(a) as being unpatentable over "Indexing of Baseball Telecast for Content-based Video Retrieval", Kawashima et al. ("Kawashima") in view of Kim et al. ("Kim").

As per claim 65, although Kawashima teaches a method of processing a video comprising generating a summary of the video comprising a plurality of segments of the video, where each of the segments includes a plurality of frames (Abstract), providing a description of the video, associating a portion of the description with a first one of the segments and associating another portion of the description with a second one of the segments (pp. 871 and 873, sections 1.1 and 2.2; *provided are indices into scenes*), Kawashima does not explicitly disclose defining a segment of a video using TV-Anytime compliant description scheme. Kim teaches a method of processing a video comprising defining a segment of a video using TV-Anytime compliant description scheme. Therefore, it would have been obvious to an artisan at the time of the invention to include Kim's teaching of defining a segment of a video using TV-Anytime compliant

description scheme in a method of processing a video to Kawashima's teaching of identifying segments of a video based upon a description in a method of processing a video as an implementation preference.

Response to Arguments

20.   Applicant's arguments with respect to claims 1-45, 47-50, 52-58 and 60-65 have been considered but are moot in view of the new ground(s) of rejection, except for the following:

Applicant argued:

(a) Claim 13 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon detecting at least one region of a generally green color and at least one region of a generally brown color.

(b) Claim 19 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon detecting at least three regions of horizontally oriented regions of colors, where each of the segments includes a plurality of frames of the video.

(c) Claim 24 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon detecting at least three regions of sufficient spatial

coherence and horizontal extent, where each of the segments includes a plurality of frames of the video.

(d) Claim 33 patentably distinguishes over Kawashima by claiming identifying a plurality of segment of the baseball video, wherein the start of the s gmen is first identified for at least one of the segments.

(e) Claim 36 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, where each of the segments is identified as a play.

(f) Claim 39 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, where each of the segments is identified as likely including a play of baseball.

(g) Claim 42 patentably distinguishes over Kawashima by claiming wherein the processing characterizes whether a batter is sufficiently close to at least one of a catcher and an umpire proximate home base.

(h) Claim 44 patentably distinguishes over Kawashima and Wang by claiming identifying a plurality of segments of the video, where each of the segments is identified as likely including a play of baseball, detecting a commercial within the video, and creating a summarization of the video by including the plurality of segments, where the summarization includes fewer frames than the video, where the plurality of segments of the video sufficiently temporally close to the commercial are free from being included within the summarization.

(i) Claim 47 patentably distinguishes over RUI by claiming creating a

summarization of the video based upon analysis of the video.

(j) Claim 61 patentably distinguishes over Rui by claiming a service provider

storing a summary of a video that includes baseball and the service provider providing

the summary in the form of streaming video to a user that is interconnected to the

service provider by a network, in response to receiving a request from the user.

(k) Claim 63 patentably distinguishes over Rui by claiming a service provider

storing a summary of a video that includes baseball and the service provider providing

the description to a user that is interconnected to the service provider by a network in

response to receiving a request from the user.

The examiner disagrees for the following reasons:

Per (a), the Office Action clearly indicates that Kawashima teaches identifying a

plurality of video segments based upon color characteristics of the video (pp. 871-873,

sections 1.1, 1.2, 2.1 and 2.2; pp. 872-873, section 2.1.3), while the teaching extracted

from Wang is for identifying a plurality of video segments based upon detecting at least

one region of a color such as green and at least one region of another color such as

brown (pp. 32-33).

Per (b), Kawashima teaches a method of processing a video comprising

identifying a plurality of segments of the video (pp. 871-873, sections 1.1, 1.2, 2.1 and

2.2; pp. 872-873, section 2.1.3). The teaching extracted from Wang is for a method of

processing a video comprising identifying a plurality of segments of the video, wherein

videos are segmented based upon regions of horizontally oriented regions of colors.

Per (c), Kawashima teaches a method of processing a video including baseball comprising identifying a plurality of segments of the video, wherein the start of the plurality of segments is identified based upon identifying the start of the play and identifying the end of the play (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; Abstract; pg. 872, section 1.2). The teaching extracted from Wang is for a method of processing a video comprising identifying a plurality of segments of the video, wherein videos are segmented based upon shape/spatial geometry such as regions of sufficient spatial coherence and horizontal extent (pg. 33, lines 27-46).

Per (d), the modified Kawashima does teach that the start of the segment is first identified for at least one of the segments, i.e. the start of the segment is identified by a start time based upon when the ball is put into play (Kawashima: pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2).

Per (e), Kawashima teaches a method of processing a video including baseball comprising identifying a plurality of segments of the video wherein each of the segments includes detecting a play of the baseball game (Abstract), which also includes each of the segments being identified as a play (pp. 871-873, sections 1.1, 1.2, 2.1 and 2.2; *e.g. a play/bat event is characterized by a start point in time slightly before the pitching and end point in time slightly after the catcher catches the ball if the ball is struck out and after the ball is thrown to a baseman if the ball is hit*).

Per (f), Kawashima teaches a method of processing a video including baseball comprising identifying a plurality of segments of the video wherein each of the segments includes detecting a play of the baseball game (Abstract), which also includes each of

the segments being identified as likely including a play of baseball (pp. 871-873,

sections 1.1, 1.2, 2.1 and 2.2; *e.g. a play of baseball/the at bat event is characterized by*

a start point in time slightly before the pitching and end point in time slightly after the

catcher catches the ball if the ball is struck out and after the ball is thrown to a baseman

if the ball is hit).

Per (g), Kawashima teaches a method of processing a video for extracting video

content using a model sequence of frames in comparing changes in a scene including

extracting scenes in which a batter struck out wherein the processing characterized by

whether a batter is sufficiently close to at least one of a catcher and an umpire

proximate home base (pg. 871, lines 25-27) is inherent since the scene in which a

batter struck out would include a batter being close to an umpire proximate home base

to be in accordance with the rules of baseball.

Per (h), Kawashima teaches a method of processing a video including baseball

comprising identifying a plurality of segments of the video wherein each of the segments

is identified as likely including a play of baseball (pp. 871-873, sections 1.1, 1.2, 2.1 and

2.2; *e.g. a play of baseball/the at bat event is characterized by a start point in time*

slightly before the pitching and end point in time slightly after the catcher catches the

ball if the ball is struck out and after the ball is thrown to a baseman if the ball is hit) and

creating a summarization of the video by including the plurality of segments, where the

summarization includes fewer frames than the video (Abstract; pg. 872, section 1.2; *i.e.*

the indexed video segments is a digest of the game or summary of the video, a.k.a.

compressed play). The teaching extracted from Wang is for a method of processing a

video comprising identifying a plurality of segments of the video, wherein videos are segmented based upon detecting a commercial within the video and creating a summarization of the video wherein the plurality of segments of the video sufficiently temporally close to the commercial are free from being included within the summarization, where the segment that has a temporally sufficiently short duration, or separating/removing the identified segment from a summarization (pg. 21, right column; pg. 29, right column; *separation of interested video portions and commercials*).

Per (i), Rui inherently teaches analyzing the video since analysis is required to create a summarization of the video (pg. 105, right column, lines 24-33; *described is a method of summarizing video content*).

Per (j), Rui does teach a service provider storing a summary of a video that includes baseball and the service provider providing the summary in the form of streaming video to a user that is interconnected to the service provider by a network, in response to receiving a request from the user (pg. 105, "Introduction"; *a video summary is transmitted in response to user's request via indices/descriptions*).

Per (k), Rui does teach a service provider storing a summary of a video that includes baseball and the service provider providing the description to a user that is interconnected to the service provider by a network in response to receiving a request from the user (pg. 105, "Introduction").

Furthermore, the Office notes that applicant did not contest the factual assertion set forth under Official Notice in paragraph sixteen of section eleven and paragraph two of section sixteen of the Office Action of 5/21/04.

Conclusion

21.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Inquires

22.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Lê Nguyen whose telephone number is **(571) 272-4068**. The examiner can normally be reached on Monday - Friday from 7:00 am to 3:30 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid, can be reached on (703) 308-0640.

The fax numbers for the organization where this application or proceeding is

assigned are as follows:

(703) 872-9306 [Official Communication]

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

Kristine Kincaid

LVN
Patent Examiner
March 30, 2005

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